(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 650 062 A3

(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
10.01.1996 Bulletin 1996/02

(43) Date of publication A2:
26.04.1995 Bulletin 1995/17

(21) Application number: **94307845.1**

(22) Date of filing: **25.10.1994**

(51) Int Cl.[6]: **G01R 1/04**, H05K 7/10, H01R 13/26, H01R 31/06

(84) Designated Contracting States:
DE FR NL

(30) Priority: **26.10.1993 US 143004**

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(54) Connection appartus

(57) A probe (1) for making electrical connections to the legs (3) of an already mounted integrated circuit (4) carries rows (2) of tapered wedges (8). The wedges within a row are spaced apart by an amount that corresponds to the width of the IC's legs. For n-many legs on a side of the IC there are n+1 corresponding wedges, which then have n-many intervening spaces. As the positioned probe is pressed down the spaces between the wedges receive the legs of the IC, and wedges become wedged between the IC's legs. Each wedge has left and right conductive surfaces (22) separated by an insulator (19,20,21). Each leg of the IC has a wedge to its left and a wedge to its right. Within the probe the right-hand conductive surface of the wedge to the left of a leg, and the left-hand conductive surface of the wedge to the right of that leg, are electrically connected together. Thus, the probe makes electrical contact to each leg in two places. The tapered wedges are of Ni-and Au-plated BeCu separated by acrylic adhesive and Kapton. Acrylic adhesive and Kapton are also used as the spacer between wedges. The rows of wedges (48-57) are cemented to a mantle (52). A lead frame (59) soldered to the butt end of the wedges connects opposing surfaces of adjacent wedges and makes the interconnection between the rows of wedges and an array of pins (61) in a pin block (60) at the top of the probe. Sticks of coplanar wedges are made by laminating layers of material in a press. The taper of the wedge tip arises from layers of shorter length in conjunction with a shaped surface in the laminating press. N+1 sticks are laminated together with intervening spacers to form a stack from which rows of n+1 wedges may be removed.

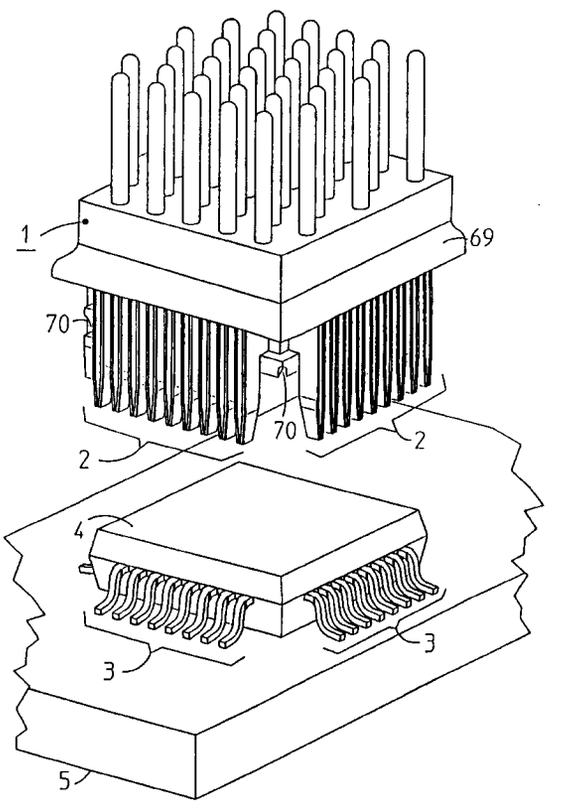

FIG 1

CORRIGENDUM issued on 14.02.96

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EUROPEAN SEARCH REPORT

Application Number
EP 94 30 7845

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y	US-A-5 015 946 (B.JANKO) * abstract; figures 4,1 * * column 1, line 38 - column 2, line 2 * * column 3, line 5 - line 17 * ---	1,2	G01R1/04 H05K7/10 H01R13/26 H01R31/06
Y	PATENT ABSTRACTS OF JAPAN vol. 10 no. 244 (E-430) [2300] ,22 August 1986 & JP-A-61 074355 (HITACHI HOKKAI SEMIC.) 16 April 1986, * abstract * ---	1,2	
A	EP-A-0 305 951 (EVERETT/CHARLES) * abstract; figures 4,9,13-16 * * figures 19-21,36 * * column 5, line 18 - line 26 * * column 10, line 26 - line 34 * * column 17, line 27 - line 36 * * column 19, line 23 - line 28 * * column 20, line 11 - line 32 * * column 21, line 35 - line 41 * * column 22, line 1 - line 7 * * column 22, line 35 - line 51 * * column 23, line 43 - line 51 * * column 25, line 55 - line 57 * ---	1,2	TECHNICAL FIELDS SEARCHED (Int.Cl.6) G01R H01R
A,P	EP-A-0 572 736 (ITT IND.) * abstract; figures 5,6 * * column 4, line 27 - line 38 * ---	1,2	
A	US-A-4 887 030 (K.NIKI ET AL.) * abstract; figures 7-10 * * column 3, line 59 - line 61 * * column 4, line 31 - line 34 * ---	1,2	
A	DE-A-27 52 749 (SIEMENS) * figures 1,5 * ---	1	
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
BERLIN	3 November 1995	Fritz, S

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	US-A-4 996 476 (M.BALYASNY ET AL.) * column 3, line 56 - column 4, line 2 * ---	1	
X,P	ELECTRONIC ENGINEERING, vol. 66, no. 809, May 1994 LONDON GB, page 95 'Wedge technology allows high density probing' * the whole document * ---	1,2	
X	WO-A-91 16737 (MINNESOTA MINING AND MANUF.) * abstract; figures 4,8-11,14,19 * * figures 22-24 * * page 12, line 4 - page 13, line 13 * * page 1, line 32 - page 2, line 7 * * page 6, line 1 - line 11 * ---	1	
E	WO-A-94 27344 (MINNESOTA MINING AND MANUF.) * abstract; figures 1,5-8 * * page 4, line 24 - page 5, line 8 * & US-A-5 330 372 (R.A.POPE ET AL.) 19 July 1994 ---	1	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
X,P	WO-A-94 13034 (S.CRANE) * page 10, paragraph 2 - paragraph 3; figures 5,13,27-30 * * page 11, paragraph 2 * -----	1	

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